

**WHAT IS CLAIMED IS:**

1           1. A computer program product which provides a visual depiction of a three  
2 dimensional object upon a display device, the program comprising computer readable  
3 coded instructions stored in a memory, the computer readable coded instructions being  
4 executable on a processor to which information is input via a user input device, wherein  
5 when executed the computer program:

6           detects insertion of a movant solid shape into a context including a target solid  
7 shape; and

8           configures the movant solid shape as having a particular attribute in accordance  
9 with an attribute of the target solid shape.

1           2. The computer program product of claim 1, wherein the program configures  
2 representative data of the movant solid shape as having a particular attribute in  
3 accordance with an attribute of the target solid shape.

1           3. The computer program product of claim 1, wherein the program configures  
2 the movant solid shape as having a particular size or dimension for compatibility with  
3 the target solid shape.

1           4. The computer program product of claim 1, wherein the program configures  
2 the movant solid shape as having a particular position relative to the target solid shape.

1           5. The computer program product of claim 1, wherein the program configures  
2 the movant solid shape as having a particular physical orientation relative to the target  
3 solid shape.

1           6. A computer program product which provides a visual depiction of a three  
2 dimensional object upon a display device, the program comprising computer readable  
3 coded instructions stored in a memory, the computer readable coded instructions being  
4 executable on a processor to which information is input via a user input device, wherein  
5 when executed the computer program:

6           detects insertion of a movant solid shape into a context including a target solid  
7 shape; and

8            configures the movant solid shape as having a particular attribute in accordance  
9 with a predetermined rule.

1            7. The computer program product of claim 6, wherein the computer program  
2 configures representative data of the movant solid shape as having a particular attribute  
3 in accordance with a predetermined rule.

1            8. The computer program product of claim 6, wherein the predetermined rule is  
2 used to configure the movant solid shape as a particular member of a class of solid  
3 shapes represented by a generic solid shape.

1            9. The computer program product of claim 6, wherein the program uses the  
2 predetermined rule to configure the movant solid shape as a preferred procurement  
3 item.

1            10. The computer program product of claim 9, wherein the program uses the  
2 predetermined rule to configure the movant solid shape as a preferred procurement item  
3 supplied by a preferred vendor.

1            11. The computer program product of claim 9, wherein the program uses the  
2 predetermined rule to configure the movant solid shape as a preferred procurement item  
3 in accordance with inventory or availability.

1            12. A computer program product which provides a visual depiction of a three  
2 dimensional object upon a display device, the program comprising computer readable  
3 coded instructions stored in a memory, the computer readable coded instructions being  
4 executable on a processor to which information is input via a user input device, wherein  
5 when executed the computer program:

6            allocates a connector object for each of plural solid shapes, each connector  
7 object being conceptually associated with a physical location on the respective solid  
8 shape, the connector object including configuration information pertaining to how its  
9 solid shape is to be configured relative to another solid shape;

10           determines an affinity of a connector object of a movant solid shape and a  
11 connector object of a target solid shape;

12           in positioning and displaying the movant solid shape and the target solid shape  
13 relative to one another, configures one of the movant solid shape and the target solid

14 shape in accordance with the configuration information of at least one of the respective  
15 connector objects.

1 13. The computer program product of claim 12, wherein the program  
2 configures representative data of one of the movant solid shape and the target solid  
3 shape in accordance with the configuration information.

1 14. The computer program product of claim 12, wherein the configuration  
2 information includes connector affinity eligibility information, and wherein in  
3 determining the affinity of the connector object for the movant solid shape and the  
4 connector object for the target solid shape the program uses the connector affinity  
5 eligibility information to determine one or more connector objects of the target solid  
6 shape that are eligible for pairing with the connector object for the movant solid shape.

1 15. The computer program product of claim 14, wherein the connector object  
2 includes a connector name field, and wherein the connector affinity eligibility  
3 information is derived from the name field.  
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5 16. The computer program product of claim 14, wherein when the program  
6 determines plural connector objects of the target solid shape can be paired with the  
7 connector object for the movant solid shape, the program invokes a predetermined rule  
8 for choosing one of the plural connector objects of the target solid shape to be paired  
9 with the connector object for the movant shape.

1 17. The computer program product of claim 16, wherein the predetermined rule  
2 is to choose from the plural connector objects of the target solid shape, for pairing with  
3 the connector object for the movant shape, a connector object having an associated  
4 physical location which is nearest a physical drop location of the connector object of  
5 the movant solid shape as displayed on the display device.

1 18. The computer program product of claim 14, wherein the configuration  
2 information includes positional information; and wherein the program utilizes the  
3 positional information to determine how the target solid shape and the movant solid  
4 shape are to be oriented relative to one another at the physical locations associated with  
5 paired connector objects.

1           19. The computer program product of claim 12, wherein the configuration  
2 information includes geometry dependency information which enables the program to  
3 determine at least one physical parameter of one of the target solid shape and the  
4 movant solid shape.

1           20. The computer program product of claim 12, wherein the configuration  
2 information includes procurement information which enables the program to determine  
3 a procurement item for the movant solid shape.

1           21. The computer program product of claim 20, wherein the procurement  
2 information indicates multiple candidate vendors for the movant solid shape; and  
3 wherein the program determines a preferred vendor for the movant solid shape.

1           22. The computer program product of claim 21, wherein the program  
2 determines a preferred vendor for the movant solid shape based on predetermined  
3 criteria.

1           23. The computer program product of claim 20, wherein the procurement  
2 information indicates multiple candidate procurement items for the movant solid shape;  
3 and wherein the program determines a preferred procurement item for the movant solid  
4 shape.

1           24. The computer program product of claim 12, wherein the program  
2 determines a preferred procurement item for the movant solid shape based on  
3 predetermined criteria.

1           25. The computer program product of claim 24, wherein the predetermined  
2 criteria is inventory or availability.

1           26. The computer program product of claim 24, wherein the predetermined  
2 criteria is vendor.

1           27. A three dimensional geometric modeling system comprising:  
2 a processor which executes a program comprising set of coded instructions  
3 stored in a memory;

4 a display device upon which, when executed, the program provides a visual  
5 depiction of a three dimensional object comprising at least one solid shape,

6 a user input device for inputting information to the processor;

7 wherein, in response to communication via the user input device of insertion of a  
8 movant solid shape into a context including a target solid shape, the processor in  
9 executing the program configures the movant solid shape as having a particular  
10 attribute in accordance with an attribute of the target solid shape.

1 28. The system of claim 27, wherein the program configures representative data  
2 of the movant solid shape as having a particular attribute in accordance with an attribute  
3 of the target solid shape

1 29. The system of claim 27, wherein the program configures the movant solid  
2 shape as having a particular size or dimension for compatibility with the target solid  
3 shape.

1 30. The system of claim 27, wherein the program configures the movant solid  
2 shape as having a particular position relative to the target solid shape.

1 31. The system of claim 27, wherein the program configures the movant solid  
2 shape as having a particular physical orientation relative to the target solid shape.

1 32. A three dimensional geometric modeling system comprising:

2 a processor which executes a program comprising set of coded instructions  
3 stored in a memory;

4 a display device upon which, when executed, the program provides a visual  
5 depiction of a three dimensional object comprising at least one solid shape,

6 a user input device for inputting information to the processor;

7 wherein, in response to communication via the user input device of insertion of a  
8 movant solid shape into a context including a target solid shape, the processor in  
9 executing the program configures the movant solid shape as having a particular  
10 attribute in accordance with a predetermined rule.

1           33. The system of claim 32, wherein the program configures representative data  
2 of the movant solid shape as having a particular attribute in accordance with a  
3 predetermined rule.

1           34. The system of claim 32, wherein the predetermined rule is used to  
2 configure the movant solid shape as a particular member of a class of solid shapes  
3 represented by a generic solid shape.

1           35. The system of claim 32, wherein the program uses the predetermined rule  
2 to configure the movant solid shape as a preferred procurement item.

1           36. The system of claim 35, wherein the program uses the predetermined rule  
2 to configure the movant solid shape as a preferred procurement item supplied by a  
3 preferred vendor.

1           37. The system of claim 35, wherein the program uses the predetermined rule  
2 to configure the movant solid shape as a preferred procurement item in accordance with  
3 inventory or availability.

1           38. A three dimensional geometric modeling system comprising:  
2 a processor which executes a program comprising set of coded instructions  
3 stored in a memory;  
4 a display device upon which, when executed, the program provides a visual  
5 depiction of a three dimensional object comprising at least one solid shape,  
6 a user input device for inputting information to the processor;  
7 wherein, in executing the program, the processor:  
8 allocates a connector object for each of plural solid shapes, each connector  
9 object being conceptually associated with a physical location on the respective solid  
10 shape, the connector object including configuration information pertaining to how its  
11 solid shape is to be configured relative to another solid shape;  
12 determines an affinity of a connector object of a movant solid shape and a  
13 connector object of a target solid shape;  
14 in positioning and displaying the movant solid shape and the target solid shape  
15 relative to one another , configures one of the movant solid shape and the target solid

16 shape in accordance with the configuration information of at least one of the respective  
17 connector objects.

1 39. The system of claim 38, wherein the program configures representative data  
2 of one of the movant solid shape and the target solid shape in accordance with the  
3 configuration information.

1 40. The system of claim 38, wherein the configuration information includes  
2 connector affinity eligibility information, and wherein in determining the affinity of the  
3 connector object for the movant solid shape and the connector object for the target solid  
4 shape the program uses the connector affinity eligibility information to determine one  
5 or more connector objects of the target solid shape that are eligible for pairing with the  
6 connector object for the movant solid shape.

1 41. The system of claim 40, wherein the connector object includes a connector  
2 name field, and wherein the connector affinity eligibility information is derived from  
3 the name field.

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5 42. The system of claim 40, wherein when the program determines plural  
6 connector objects of the target solid shape can be paired with the connector object for  
7 the movant solid shape, the program invokes a predetermined rule for choosing one of  
8 the plural connector objects of the target solid shape to be paired with the connector  
9 object for the movant shape.

1 43. The system of claim 42, wherein the predetermined rule is to choose from  
2 the plural connector objects of the target solid shape, for pairing with the connector  
3 object for the movant shape, a connector object having an associated physical location  
4 which is nearest a physical drop location of the connector object of the movant solid  
5 shape as displayed on the display device.

1 44. The system of claim 40, wherein the configuration information includes  
2 positional information; and wherein the program utilizes the positional information to  
3 determine how the target solid shape and the movant solid shape are to be oriented  
4 relative to one another at the physical locations associated with paired connector  
5 objects.

1           45. The system of claim 38, wherein the configuration information includes  
2 geometry dependency information which enables the program to determine at least one  
3 physical parameter of one of the target solid shape and the movant solid shape.

1           46. The system of claim 38, wherein the configuration information includes  
2 procurement information which enables the program to determine a procurement item  
3 for the movant solid shape.

1           47. The system of claim 46, wherein the procurement information indicates  
2 multiple candidate vendors for the movant solid shape; and wherein the program  
3 determines a preferred vendor for the movant solid shape.

1           48. The system of claim 46, wherein the program determines a preferred vendor  
2 for the movant solid shape based on predetermined criteria.

1           49. The system of claim 46, wherein the procurement information indicates  
2 multiple candidate procurement items for the movant solid shape; and wherein the  
3 program determines a preferred procurement item for the movant solid shape.

1           50. The system of claim 38, wherein the program determines a preferred  
2 procurement item for the movant solid shape based on predetermined criteria.

1           51. The system of claim 50, wherein the predetermined criteria is inventory or  
2 availability.

1           52. The system of claim 50, wherein the predetermined criteria is vendor.